

(12) UK Patent Application (19) GB (11) 2 250 776 (13) A

(43) Date of A publication 17.06.1992

(21) Application No 9124815.3

(22) Date of filing 22.11.1991

(30) Priority data

(31) 4039044

(32) 07.12.1990

(33) DE

(71) Applicant

TA Triumph-Adler Aktiengesellschaft

(Incorporated in the Federal Republic of Germany)

Postfach 4929, D-8500 Nurnberg 1,
Federal Republic of Germany

(72) Inventor

Reimund Seeberger

(74) Agent and/or Address for Service

A A Thornton & Co

Northumberland House, 303-306 High Holborn,
London, WC1V 7LE, United Kingdom

(51) INT CL⁵

E05C 1/14

(52) UK CL (Edition K)

E2A ACAP A106 A160 A171 A410 A505

U1S S1811

(56) Documents cited

GB 1313461 A

GB 1140758 A

GB 0499124 A

US 4576405 A

(58) Field of search

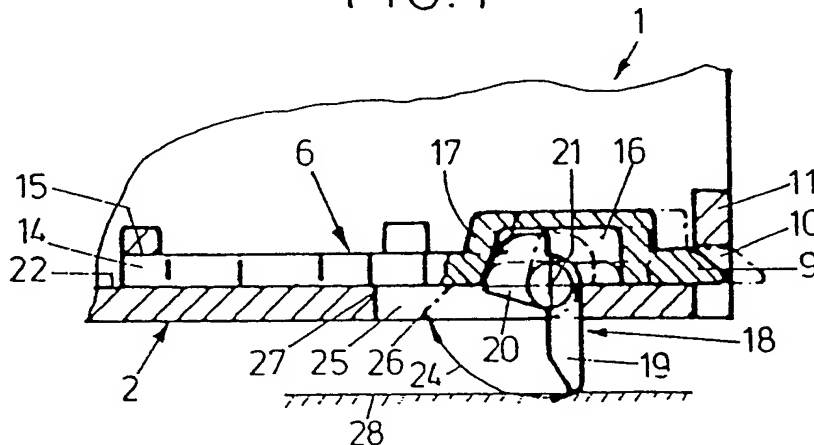
UK CL (Edition K) E2A ACAP ACCB

INT CL⁵ E05B, E05C

(54) Cover arrangement for a recess in a housing

(57) In a cover arrangement for a recess in a housing, in particular for batteries, cables, connection plugs and the like, on an electrical apparatus, such as a portable computer, a battery charger or the like, comprising a lid (2), which is pivoted about an axis along an outside edge, with at least one spring-loaded locking slide (6), located opposite this outside edge, to engage in a recess in the housing, in order to achieve a simple and economic construction together with a high degree of efficiency it is envisaged that hinged in the lid (2) is an operating mechanism (18) which has a first lever section which serves as an operating lug (19), and a second lever section which serves as a cam lug (20), in such a way that when the operating mechanism (18) is turned, the cam lug (20) engages with the locking slide (6), pushing it out of the locking position.

FIG. 1



GB 2 250 776 A

11

FIG. 1

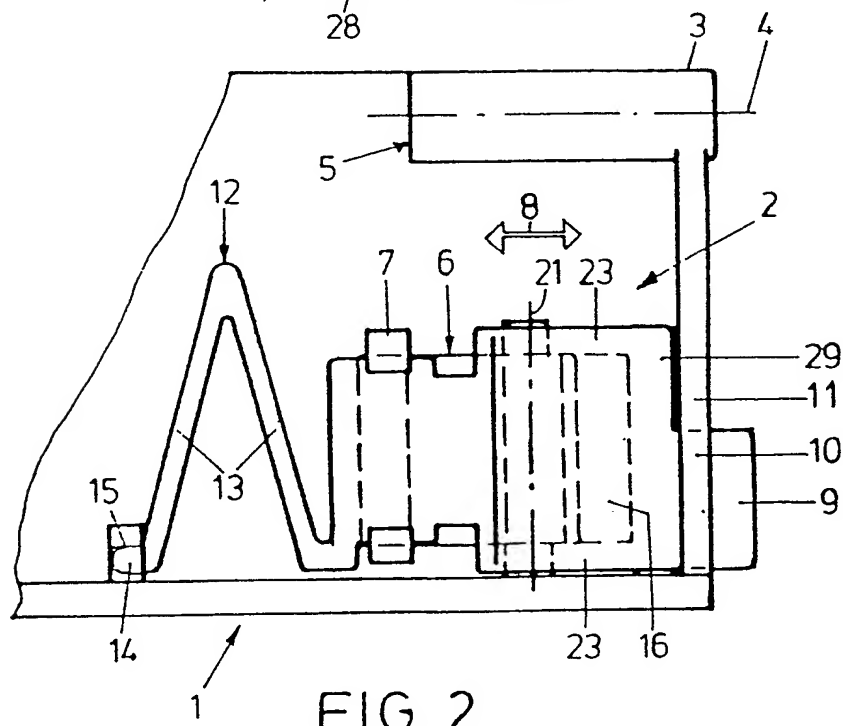
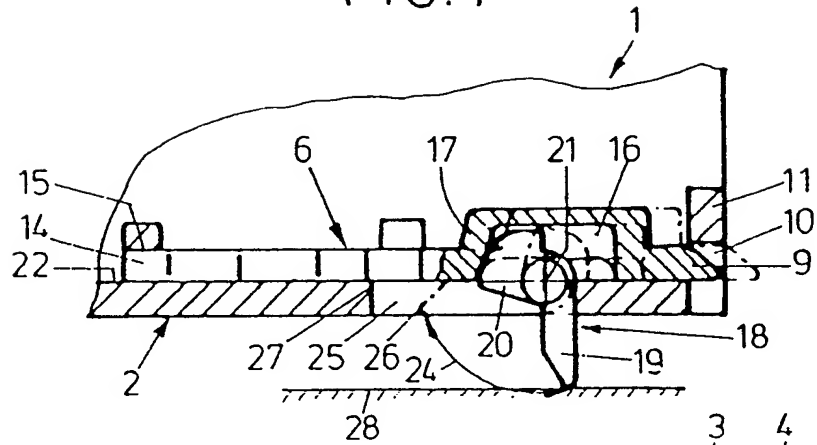


FIG. 2

- 1 -

COVER ARRANGEMENT FOR A RECESS IN A HOUSING

The present invention relates to a cover arrangement for a recess in a housing. More particularly, the present invention relates to such a cover arrangement for a recess for holding batteries, cables, connection plugs and the like, on an electrical apparatus, such as a portable computer, a battery charging apparatus or the like.

Cover arrangements of this kind are provided on the housings of many apparatus. From the design point of view, they must fit in with the overall appearance of the housing, and must enable a closed covering of the recess in question, for transportation, whilst allowing easy and problem-free opening.

Known arrangements of this type have a large number of individual parts, including some metal components with relatively high precision requirements, thus, due to the cost of the individual parts and the assembly costs, overall they are relatively expensive.

Starting from this point, the present invention has as its basis the task of designing such a cover arrangement which is cheap, whilst ensuring secure closure and ease of handling.

According to the present invention there is provided a cover arrangement for a recess in a housing comprising a lid which is pivoted about an axis along an outside edge, with at least one spring loaded locking slide, located opposite said outside edge, to engage in a recess in the housing, wherein an operating mechanism is pivoted in the lid, the operating mechanism having a first lever section which serves as an operating lug, and a second lever section which serves as a cam lug, such that when the operating lug is turned, the cam lug engages with the locking slide, pushing it out of the locking position.

The operating mechanism preferably has an essentially L-shaped basic form.

The arrangement of the present invention enables easy operation from the outside, with the lever section serving as an operating lug being turned outwards from the level of the lid only when the lock is released, and being able to remain there in a stable final position. This results in a double advantage, in that on the one hand, the turned-out operating lugs can simultaneously serve as supports for the opened out lid, so that the hinge is not overloaded by the dead weight of the lid, and that on the other hand, the lever section serving as a cam lug holds the locking slide fast in its unlocked final position, although the locking slide continues to be loaded by the return spring. Thus with the simplest construction, a most advantageous design is achieved.

In a preferred arrangement, it is envisaged that the free length of the operating lugs in their turned-out position corresponds approximately to the distance of the pivoting axis of the lid from the standing level of the housing. By this arrangement the opened-out lid continues the recess horizontally, so that for example in the case of a battery charger, the battery to be charged can be placed on the lid.

It is furthermore envisaged that the pivot axis of the operating mechanism may lie in the region of the plane of the lid, and the cam lug may engage with a recess in the locking slide.

This arrangement provides for the operating lug in the turned-in, i.e. locked state, to be flush with the surface of the lid, so that it does not form an annoying projection. The cam lug engages with the recess in the spring-loaded locking slide, which may, for example, be designed with a box-like profile so that for unlocking, the cam lug can engage on the one front face of this box profile. Since, in the unlocked final position, the cam lug is then perpendicular at this front face, this position is secured as a stable final position of the operating mechanism.

Preferably, it is further envisaged that the locking slide has a stop shoulder on the side facing away from the spring. A stop shoulder of this type ensures that the end of the locking slide which serves to lock, in each case, projects into the locking opening only by a defined portion, and accordingly cannot jam.

Furthermore, it is envisaged that the locking slide preferably has at least one spring arm running oblique to its longitudinal direction moulded on to the locking slide in one piece. Such an obliquely-running spring arm, or for advantage a number of such spring arm adjoining one another, allows the return spring to be injection-moulded from plastic in one piece with the locking slide, which represents both a simplification in terms of the manufacturing process, and easy assembly.

The invention is described below in more detail, on the basis of a preferred embodiment, in conjunction with the drawing. The figures show the following:

Figure 1 shows a vertical partial section of a cover arrangement in accordance with the invention, with

the lid opened and with the operating lug swung out, and

Figure 2 shows a top view, corresponding to Figure 1, of the swung-out lid.

A cover arrangement 1 as represented in the drawing comprises a tray-shaped lid 2, which is pivoted about an axis 4, running parallel to a longitudinal edge 3, by means of a hinge arrangement 5 on a housing - not shown in further detail - of an electrical apparatus. The cover arrangement 1 can, for example, serve to cover a recess in the housing of a laptop computer for the storage of connection cables.

The lid 2 further supports a locking slide 6, axially movable in the direction of the arrow 8 via guides 7. A locking projection 9 passes through a recess 10 in a side wall 1 of the lid 2, and can accordingly, in the locking state shown by a dot-dash line in Figure 1, engage with a recess or undercut of the housing. The locking slide is biased into this locking position (shown by a dot-dash line in Figure 1) by a spring arrangement 12, which is formed by two spring arms 13 running oblique to the longitudinal axis of the locking slide 6. The spring arms 13 are injection-moulded from plastic, in one piece with the locking slide 6. The free end 14 of the outer spring arm 13 engages with a holding recess 15 on the lid 2, and is fixed there.

As can be clearly seen from Figure 1 in particular, the locking slide 6 has a box-shaped closed recess 16 with a slightly obliquely-running frontal face 17. In the region of this recess 16, an operating mechanism 18 is provided.

The operating mechanism 18 has an essentially L-shaped basic form with two lever sections, with one of the lever sections being designed as an operating lug 19, and the second lever section providing a cam lug 20. The operating mechanism 18 is pivoted about a central axis 21,

it being apparent from Figure 1 that the axis 21 lies approximately in the plane of the inner surface 22 of the lid 2. The pivot providing the axis 21 passes through recesses in the side walls 23 of the recess 16, and is fixedly connected with the lid 2.

The operating mechanism 18 can be pivoted about the axis 21 in the direction of the arrow 24, with the operating lug 19 coming to rest, in the turned-in, locked state, in a recess 25 of the lid 2, flush with its outer face.

To unlock, a finger can be inserted into the area between the front edge 26, shown with a dot-dash line in Figure 1, and the edge 27 of the recess 25, and thus pivot the operating mechanism 18 outwards. Due to this pivoting movement, the cam lug 20 is moved from the position shown by a broken line in Figure 1, and pressed against the front face 17 of the recess 16 (to the left in Figure 1), which causes the locking slide 6 to be brought from the locking position, shown in Figure 1 by a broken line and in Figure 2 by a continuous line, into a position where the locking projection 9 is fully retracted into the lid 2. In this position, the longitudinal axis of the cam lug 20 stands approximately perpendicular to the front face 17 of the recess 16 in the locking slide 6, so that the locking slide 6 is held in a stable final position. The operating lug 19 is held at a right angle from the lid 2, in a downward position, and can accordingly serve as a kind of support, to support the lid 2 against a base 28 (c.f. Figure 1).

The locking slide 6 has a stop shoulder 29, which in the locked state, as shown in Figure 2, comes to rest at the side wall 11 of the lid 2, so that the locking projection 9 projects by a defined portion.

A cover arrangement in accordance with the invention is used to particular advantage, for example, in a battery charging apparatus. Here, it is shown to be

favourable that the operating lug 19 has a length which approximately corresponds to the distance of the pivoting axis 4 of the lid 2 from the standing level of the housing, with the standing level being determined by a housing outer wall or by supports attached there. Accordingly, when the lid is open, the operating lugs 19 can serve as supports to support the lid above the base 28, whilst the recess in the housing is then continued, in alignment, by the opened lid 2, and the battery to be charged can be placed on the lid.

CLAIMS

1. A cover arrangement for a recess in a housing comprising a lid, which is pivoted about an axis along an outside edge, with at least one spring-loaded locking slide, located opposite said outside edge, to engage in a recess in the housing, wherein an operating mechanism is pivoted in the lid, the operating mechanism having a first lever section which serves as an operating lug, and a second lever section which serves as a cam lug, such that when the operating mechanism is turned the cam lug engages with the locking slide pushing it out of the locking position.
2. A cover arrangement in accordance with Claim 1, wherein the operating mechanism has an essentially L-shaped basic form.
3. A cover arrangement in accordance with Claim 1 or Claim 2, wherein the first lever section has a length which corresponds approximately to the distance of the pivoting axis of the lid from the standing level of the housing.
4. A cover arrangement in accordance with any preceding claim, wherein the pivot axis of the operating mechanism lies in the region of the plane of the lid and the cam lug engages with a recess in the locking slide.
5. A cover arrangement in accordance with any preceding claim, wherein the locking slide has a stop shoulder on the side facing away from the spring-loaded side of the locking slide.

6. A cover arrangement in accordance with any preceding claim, wherein at least one spring arm is provided on the locking slide running obliquely to the longitudinal axis of the locking slide, the spring arm and the locking slide being injection-moulded in one piece.

7. A cover arrangement substantially as hereinbefore described with reference to the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

Application number

9124815.3

Relevant Technical fields

(i) UK CI (Edition K) E2A (ACAP, ACCB)

(ii) Int CI (Edition ⁵) E05B; E05C

Databases (see over)

(i) UK Patent Office

(ii)

Search Examiner

P J SILVIE

Date of Search

12 FEBRUARY 1992

Documents considered relevant following a search in respect of claims ALL

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1313461 A (TAYLOR)	1
X	GB 1140758 A (MARSTON)	1
X	GB 0499124 A (BUNN)	1
X	US 4576405 A (WARTIAN)	1



Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).